

Appl. No. 10/590,885

Attorney Docket No. 11256-008

**I. Listing of the Claims**

1. (Previously Presented) A screw comprising a threaded shank with a torque application feature for transmitting torque and a screw tip, the threaded shank being composed of a shank core and a thread-forming thread, and the thread being formed as an elevation which extends helically over the shank core, and forms two flanks which converge at an outer thread edge and has a height  $H$  measured radially from the shank core to the thread edge, the thread having, as viewed in radial profile, at the thread edge a specific apex angle  $\alpha$  formed between the adjacent flanks, at least one of the two flanks of the thread is formed concavely in the region between the shank core and the thread edge, as viewed in radial profile, in such a way that the apex angle  $\alpha$  is less than a flank angle  $\alpha_F$  defined between imaginary straight flank lines  $FG$  formed by a lowest point  $G$  of the thread and the thread edge, wherein one or both of the flanks extend initially in a straight line from the shank core, corresponding to the straight flank line  $FG$ , and only extends concavely from a specific flank height  $h_F$ .
2. (Previously Presented) The screw as claimed in claim 1, wherein both of the flanks are concavely formed.
3. Canceled.

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4. Canceled.
5. (Previously Presented) The screw as claimed in claim 1, wherein the flanks extend substantially in a straight line in an outer partial region adjoining the thread edge as viewed in profile.
6. (Previously Presented) The screw as claimed in claim 1, wherein the apex angle  $\alpha$  lies approximately in the range from 25° to 35°.
7. (Withdrawn-Currently Amended) The screw as claimed in claim 1, wherein at least in a partial region of the thread, the outer thread edge extends in a wave form in the radial direction with an amplitude  $U$  between wave crests with the thread height  $H$  and wave troughs with a height  $h$  reduced by the amplitude  $U$ , and the thread has, at least in the region of one of the flanks, in the region of the wave troughs of the thread edge ~~indentations~~, edge indentations which interrupt the surface of the flank and the outer boundary of which is the thread edge, the thread respectively having in the regions of the wave crests of the thread edge that are not interrupted by the indentations the ~~first~~ apex angle  $\alpha$  defining a first apex angle, formed between the flanks, and a second apex angle  $\alpha'$ , in the lowest region of the wave troughs of the thread edge.
8. (Withdrawn-Currently Amended) The screw as claimed in claim 7, wherein the indentations have surfaces extending substantially in a

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straight line, seen in the radial direction, in the profile of the ~~thread~~,  
thread the second apex angle  $\alpha'$  being greater than the first apex angle  
 $\alpha$  and lying approximately in the range from  $30^\circ$  to a maximum of  $58^\circ$ .

9. (Withdrawn-Currently Amended) The screw as claimed in claim 7,  
wherein the indentations have, as viewed in profile, concave surfaces,  
at least in certain portions thereof, the second apex angle  $\alpha'$  being of  
approximately the same order of magnitude as the first apex angle  $\alpha$ .
10. (Withdrawn) The screw as claimed in claim 7, for use for screwing into  
softer materials including wood or wood-like materials, the amplitude U  
of the waved thread edge is approximately 0.2 to 0.4 times the thread  
height H.
11. (Withdrawn) The screw as claimed in claim 7, for use for screwing into  
harder materials, including plastics or metals, the amplitude U of the  
waved thread edge is approximately 0.05 to 0.15 times the thread height  
H.
12. (Withdrawn) The screw as claimed in claim 7, for universal use for  
screwing into various materials, the amplitude U of the waved thread  
edge is approximately 0.1 to 0.3 times the thread height H.
13. (Withdrawn) The screw as claimed in claim 7, wherein the indentations  
have in each case a depth Z, which is measured inward in the radial

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direction from a diameter  $D$  determined by the wave crests of the thread edge and is less than or equal to the height  $H$  of the thread.

14. (Withdrawn) The screw as claimed in claim 13, for use for screwing into softer materials, including wood or wood-like materials, the radial depth  $Z$  of the indentations is approximately 0.8 to 1 times the thread height  $H$ .
15. (Withdrawn) The screw as claimed in claim 13, for use for screwing into harder or more resistant materials, including plastics or metals, the radial depth  $Z$  of the indentations is approximately 0.2 to 0.3 times the thread height  $H$ .
16. (Withdrawn) The screw as claimed in claim 13, for universal use for screwing into various materials, the radial depth  $Z$  of the indentations is approximately 0.3 to 0.8 times the thread height  $H$ .
17. (Withdrawn) The screw as claimed in claim 7, wherein the wave crests are spaced apart from one another in the circumferential direction by a pitch angle  $\delta$ , which, for use for screwing into softer materials, including wood or wood-like materials, lies in the range from  $30^\circ$  to  $45^\circ$ .
18. (Withdrawn) The screw as claimed in claim 7, wherein the wave crests are spaced apart from one another in the circumferential direction by a pitch angle  $\delta$ , which, for use for screwing into harder or more resistant materials, including plastics or metals, lies in the range from  $15^\circ$  to  $24^\circ$ .

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19. (Withdrawn-Currently Amended) The screw as claimed in claim 7, wherein the wave crests are spaced apart from one another in the circumferential direction in each case by a pitch angle  $\delta$ , which, for use for screwing into various materials, lies in the range from 20° to 35°.
20. (Withdrawn) The screw as claimed in claim 7, wherein the indentations are formed from the adjacent face of the flank by a limiting line, the limiting line having substantially the form of a parabola with lateral, approximately V-shaped limiting portions, a thread portion that is uninterrupted with respect to its flanks being respectively formed between two neighboring indentations in the region of the wave crests and the limiting portions that lie on both sides of the thread portion enclosing an angle  $\gamma$ , which lies in the range from 30° to 90°.
21. (Withdrawn) The screw as claimed in claim 20, wherein the limiting portions merge with one another in the region of each of the wave crests over a rounding with a radius  $r$ , which corresponds approximately to 0.1 to 0.3 times the thread height  $H$ .
22. (Withdrawn-Currently Amended) The screw as claimed in claim 20, wherein each indentation is symmetrically formed in such a way that its limiting portions extend in each case at the same angle to a radial axis of the indentation in the screwing-in direction E and unscrewing direction A-directions of the screw.

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23. (Withdrawn-Currently Amended) The screw as claimed in claim 20, wherein each indentation is asymmetrically formed in such a way that the limiting line forms a front limiting line in the screwing-in direction E which extends more steeply than the limiting line forming a rear limiting line, an axis of the indentation being offset in relation to a radial center line of the wave trough of the thread edge by an acute angle  $\beta$  in the screwing-in direction (E), the angle  $\beta$  preferably being approximately of the order of magnitude in the range of  $10^\circ$  to  $25^\circ$ .
24. (Withdrawn-Currently Amended) The screw as claimed in claim 7, wherein the thread extends up to a pointed end of the screw tip, the thread being configured with the indentations and the waved thread edge from the screw tip, at least over the a first adjoining turn of the thread.
25. (Withdrawn) The screw as claimed in claim 7, wherein the indentations are formed lying opposite one another on both of the flanks of the thread.
26. (Withdrawn) The screw as claimed in claim 7, wherein in the region of the screw tip, the spacing of the indentations becomes smaller toward a pointed end of the screw tip.

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27. (Previously Presented) The screw as claimed in claim 1, wherein the thread, configured as a one-start thread, has a lead  $S$  which is approximately 0.5 times the outer thread diameter  $D$ .
28. (Previously Presented) The screw as claimed in claim 1, wherein the screw tip is formed with automatically piercing properties.